

What is claimed is:

1. An apparatus for making a color proof based on an image signal including yellow, magenta, cyan and black component data Y, M, C, K for each pixel, comprising:

an image signal input section to receive the image signal;

a black component correcting section to correct the black component data K on the basis of the yellow, magenta and cyan component data Y, M, C for each pixel in accordance with a predetermined black component correcting condition;

an image signal output section to output an image signal including yellow, magenta, cyan and corrected-black component data Y, M, C, K'; and

a color proof making section to expose a silver halide light sensitive material based on the outputted image signal with a plurality of light sources different in wavelength and to make a color proof sheet for each color of yellow, magenta, cyan and black.

2. The apparatus of claim 1, wherein in accordance with the predetermined black component correcting condition, the black component correcting section compares a value of the

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black component data K with a first boundary value and compares a maximum value of the yellow, magenta or cyan component data Y, M, or C with a second boundary value and wherein when the value of the black component data K is larger than the first boundary value and the maximum value is larger than the second boundary value, the black component correcting section reduces the value of the black component data in accordance with the value of the black component data K and the maximum value.

3. The apparatus of claim 2, wherein the color proof making section comprises a halftone dot generating section to generate and output halftone dot image data of halftone dot area ratios on the basis of the yellow, magenta, cyan and corrected-black component data Y, M, C, K', and the color proof making section conducts exposing based the halftone dot image data.

4. The apparatus of claim 3, wherein the first boundary value is not smaller than 50% and smaller than 100% as converted into halftone dot area ratio expressed by percent.

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5. The color proofing apparatus of claim 2, wherein the second boundary value is not smaller than 0% and smaller than 80% as converted into halftone dot area ratio expressed by percent.

6. The color proofing apparatus of claim 3, wherein the first boundary value is not smaller than 50% and smaller than 100%, the second boundary value is not smaller than 0% and smaller than 80% as converted into halftone dot area ratio expressed by percent, and the black component correcting section reduces the value of black component data by at most 10% of the value of black component data K before corrected.

7. The apparatus of claim 1, further comprising:

a characteristic correcting section to correct at least one of a gradation correction and a color tone characteristic of the image signal.

8. The apparatus of claim 7, wherein the black component correcting section corrects the black component data K after the characteristic correcting section corrects one of the

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gradation correction and the color tone characteristic of the image signal.

9. The apparatus of claim 1, wherein the image signal input section receives the image signal after the image signal is processed by a halftone dot generating, and when each of the yellow, magenta, cyan and black component data Y, M, C, K takes one of binary values (1, 0), the predetermined black component correcting condition is that the value of the black component data is made zero (K=0) when a following formula is satisfied:

$$((Y \text{ or } M \text{ or } C) \text{ and } K) \text{ and } Q = 1,$$

where Y, M, C, and K are the binary values of the yellow, magenta, cyan and black component data Y, M, C, K and Q is a control data taking one of binary values (1, 0).

10. The apparatus of claim 1, wherein the image signal input section receives the image signal after the image signal is processed by a halftone dot generating, and when each of the yellow, magenta, cyan and black component data Y, M, C, K takes one of binary values (1, 0), the predetermined black component correcting condition is that the value of the black component data is made zero (K=0) when in the (n x n)

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pixel area centering on the objective pixel of the component data K, if all the pixels in the area are "1", a binary value K' is made equal to 1 ( $K' = 1$ ), and if there is any "0", K' is made equal to zero ( $K' = 0$ ), and a following formula is satisfied:

$$((Y \text{ or } M \text{ or } C) \text{ and } K') \text{ and } Q = 1,$$

where Q is a control data taking one of binary values (1, 0).

11. A method for making a color proof based on an image signal including yellow, magenta, cyan and black component data Y, M, C, K for each pixel, comprising the steps of:

receiving the image signal;

correcting the black component data K on the basis of the yellow, magenta and cyan component data Y, M, C for each pixel in accordance with a predetermined black component correcting condition;

outputting an image signal including yellow, magenta, cyan and corrected-black component data Y, M, C, K';

exposing a silver halide light sensitive material based on the outputted image signal with a plurality of light sources different in wavelength; and

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making a color proof sheet for each color of yellow, magenta, cyan and black.

12. The method of claim 11, wherein in accordance with the predetermined black component correcting condition, correcting the black component data K is conducted by comparing a value of the black component data K with a first boundary value, and comparing a maximum value of the yellow, magenta or cyan component data Y, M, or C with a second boundary value, and wherein when the value of the black component data K is larger than the first boundary value and the maximum value is larger than the second boundary value, reducing the value of the black component data in accordance with the value of the black component data K and the maximum value.

13. The method of claim 12, wherein the first boundary value is not smaller than 50% and smaller than 100% as converted into halftone dot area ratio expressed by percent.

14. The method of claim 12, wherein the second boundary value is not smaller than 0% and smaller than 80% as converted into halftone dot area ratio expressed by percent.

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15. The method of claim 12, wherein the first boundary value is not smaller than 50% and smaller than 100%, the second boundary value is not smaller than 0% and smaller than 80% as converted into halftone dot area ratio expressed by percent, and the black component correcting section reduces the value of black component data by at most 10% of the value of black component data K before corrected.

16. The method of claim 11, wherein the step of receiving the image signal is conducted after the image signal is processed by a halftone dot generating, and when each of the yellow, magenta, cyan and black component data Y, M, C, K takes one of binary values (1, 0), the predetermined black component correcting condition is that the value of the black component data is made zero (K=0) when a following formula is satisfied:

$$((Y \text{ or } M \text{ or } C) \text{ and } K) \text{ and } Q = 1,$$

where Y, M, C, and K are the binary values of the yellow, magenta, cyan and black component data Y, M, C, K and Q is a control data taking one of binary values (1, 0).

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17. The method of claim 11, wherein the step of receiving the image signal is conducted after the image signal is processed by a halftone dot generating, and when each of the yellow, magenta, cyan and black component data Y, M, C, K takes one of binary values (1, 0), the predetermined black component correcting condition is that the value of the black component data is made zero ( $K=0$ ) when in the ( $n \times n$ ) pixel area centering on the objective pixel of the component data K, if all the pixels in the area are "1", a binary value  $K'$  is made equal to 1 ( $K' = 1$ ), and if there is any "0",  $K'$  is made equal to zero ( $K' = 0$ ), and a following formula is satisfied:

$$((Y \text{ or } M \text{ or } C) \text{ and } K') \text{ and } Q = 1,$$

where Q is a control data taking one of binary values (1, 0).

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